

APPLICATION SERIAL NO. 09/821,335

PATENT

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims

Claims 1 – 34 (canceled)

Claim 35 (previously presented): A system as recited in claim 38, wherein the replicated micro-structured optical element has a feature height of less than 10 μm .

Claim 36 (previously presented): A system as recited in claim 38, wherein the replicated micro-structured optical element is a transmissive diffractive optical element.

Claim 37 (previously presented): A system as recited in claim 38, wherein the replicated micro-structured optical element is a reflective, diffractive optical element.

Claim 38 (previously presented): An optical system, comprising:

a stack of at least two optical sheets, at least one of the optical sheets including a surface replicated with both a micro-structured optical element and at least one three-dimensional optical element;

wherein the three-dimensional optical element has a vertical dimension of at least 100 μm relative to a replication base surface.

Claim 39 (previously presented): A system as recited in claim 38, wherein the three-dimensional optical element has a vertical dimension of at least 500 μm relative to a base surface.

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Claim 40 (previously presented): A system as recited in claim 38, wherein the three-dimensional optical element has a vertical dimension of at least 1 mm relative to a base surface.

Claim 41 (previously presented): A system as recited in claim 38, wherein at least one of the optical sheets includes a first surface replicated with at least a first optical element and a second surface replicated with at least a second optical element.

Claim 42 (previously presented): A system as recited in claim 38, further comprising one or more spacers interposed within the stack of at least two optical sheets.

Claim 43 (previously presented): A system as recited in claim 38, wherein at least one of the optical sheets includes an integrated spacer.

Claim 44 (previously presented): A system as recited in claim 38, wherein an optical path within the stack passes from a first optical element on a first optical sheet to a first optical element on a second optical sheet and to a second optical element on the first optical sheet.

Claim 45 (original): A system as recited in claim 44, wherein the first and second elements on the first optical sheet are on a first surface of the first optical sheet.

Claim 46 (previously presented): A system as recited in claim 38, further comprising at least one active optical element disposed on one of the optical sheets.

Claim 47 (previously presented): A system as recited in claim 38, further comprising at least one passive optical element attached to a surface of one of the optical sheets.

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Claim 48 (previously presented): An optical system, comprising:

a plurality of stacked optical sheets, each of the stacked optical sheets including at least one optical element replicated on a surface,

wherein an optical path within the plurality of stacked sheets passes from a first optical element on a first optical sheet of the plurality of stacked optical sheets to a first optical element on a second optical sheet of the plurality of stacked optical sheets and from the first optical element on the second optical sheet to a second optical element on the first optical sheet.

Claim 49 (original): A system as recited in claim 48, wherein the optical path further passes from the second optical element on the first optical sheet to a second optical element on the second optical sheet.

Claim 50 (original): A system as recited in claim 48, wherein the first and second optical elements on the first optical sheet are on a first surface of the first optical sheet.

Claim 51 (original): An system as recited in claim 48, wherein the first and second optical elements on the first optical sheet are respectively on first and second surfaces of the first optical sheet.

Claim 52 (original): An system as recited in claim 48, wherein one of the optical sheets includes a surface replicated with a micro-structured optical element.

Claim 53 (original): An system as recited in claim 52, wherein the micro-structured optical element is a reflective diffractive optical element.

Claim 54 (original): An system as recited in claim 52, wherein the micro-structured optical element is a transmissive diffractive optical element.

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Claim 55 (original): A system as recited in claim 48, further comprising one or more spacers interposed within the plurality of stacked optical sheets.

Claim 56 (original): A system as recited in claim 48, wherein one of the optical sheets defines a sheet plane and has a surface replicated with an optical element having a dimension of at least 100 μm in a direction perpendicular to the sheet plane.

Claim 57 (original): A system as recited in claim 48, wherein one of the optical sheets defines a sheet plane and has a surface replicated with an optical element having a dimension of at least 500 μm in a direction perpendicular to the sheet plane.

Claim 58 (original): A system as recited in claim 48, wherein one of the optical sheets defines a sheet plane and has a surface replicated with an optical element having a dimension of at least 1 mm in a direction perpendicular to the sheet plane.

Claim 59 (original): A system as recited in claim 48, wherein at least one of the optical sheets includes an integrated spacer.

Claims 60 – 77 (canceled)

Claim 78 (new): An optical system, comprising:

a plurality of stacked optical sheets, each of the stacked optical sheets including at least one optical element replicated on a surface,

wherein an optical path within the plurality of stacked sheets passes from a first optical element on a first optical sheet of the plurality of stacked optical sheets to a first optical element on a second optical sheet of the plurality of stacked optical sheets, and from the first optical element on the second optical sheet to a second optical element on the first optical sheet without substantially entering the second optical sheet proximate the first optical element on the second optical sheet.

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Claim 79 (new): A system as recited in claim 78, wherein the optical path further passes from the second optical element on the first optical sheet to a second optical element on the second optical sheet.

Claim 80 (new): A system as recited in claim 78, wherein the first and second optical elements on the first optical sheet are on a first surface of the first optical sheet.

Claim 81 (new): An system as recited in claim 78, wherein the first and second optical elements on the first optical sheet are respectively on first and second surfaces of the first optical sheet.

Claim 82 (new): An system as recited in claim 78, wherein the first optical element on the second optical sheet is a surface-replicated micro-structured optical element.

Claim 83 (new): An system as recited in claim 82, wherein the micro-structured optical element is a reflective diffractive optical element.

Claim 84 (new): A system as recited in claim 78, wherein the second optical element on the first optical sheet is a surface-replicated optical element having a dimension of at least 100 μm in a direction perpendicular to the first optical sheet.

Claim 85 (new): A system as recited in claim 78, wherein the second optical element on the first optical sheet is a surface-replicated optical element having a dimension of at least 500 μm in a direction perpendicular to the first optical sheet.

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Claim 86 (new): A system as recited in claim 78, wherein the second optical element on the first optical sheet is a surface-replicated optical element having a dimension of at least 1 mm in a direction perpendicular to the first optical sheet.

Claim 87 (new): An system as recited in claim 78, wherein:

the first optical element on the second optical sheet is a surface-replicated micro-structured optical element; and

the second optical element on the first optical sheet is a surface-replicated optical element having a dimension of at least 100 μm in a direction perpendicular to the first optical sheet.

Claim 88 (new): A system as recited in claim 78, further comprising one or more spacers interposed within the plurality of stacked optical sheets.

Claim 89 (new): A system as recited in claim 78, wherein at least one of the optical sheets includes an integrated spacer.